

Product Data Sheet

Product Name: Terbinafine

Cat. No.: GC17066

Chemical Properties

Cas. No. 91161-71-6

Chemical Name (E)-N,6,6-trimethyl-N-(naphthalen-1-ylmethyl)hept-2-en-4-yn-1-amine

SMILES CC(C)(C)C#CC=CCN(C)CC1=CC=CC2=CC=CC=C21

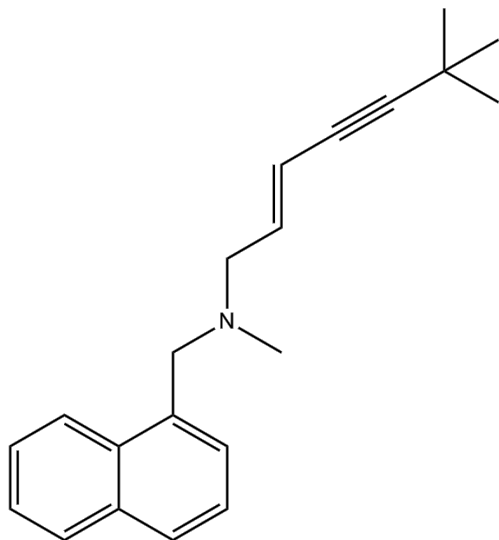
Formula $C_{21}H_{25}N$ M.Wt 291.43

Solubility $\geq 11.9\text{mg/mL}$ in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Caution: Product has not been fully validated for medical applications. For research use only.

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Cell lines	HaCaT cells
Preparation Method	Terbinafine was incubated with HaCaT cells for 24 hours, and DMSO (1%) and doxorubicin were used as control and positive control, respectively. Sulforhodamine B protein (SRB) staining was used to evaluate the cytotoxicity of Terbinafine on HaCaT cells.
Reaction Conditions	50、 25、 12.5、 6.25、 3.125 and 1.56 µg/mL, 24 h
Applications	The IC₅₀ value of Terbinafine against HaCaT cells was 12.5-25 µg/mL. IC₅₀ values of Terbinafine showed moderate degree of cell rounding and cell shrinkage compared with untreated and vehicle controls.
Animal experiment [2]:	
Animal models	Guinea Pig Model of Skin Infection
Preparation Method	For treatment, Terbinafine is suspended in 2% methylcellulose and 0.5% Tween 80. Treatment began on the day of inoculation with Trichophyton mentagrophytes and continued once daily for 9 consecutive days. Mycologic status was assessed 24 hours after the last treatment.
Dosage form	2, 4, 6 and 8 mg/kg/day, oral, 9 days

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Applications Oral dose of 4 to 6 mg/kg per day from the day of infection for good activity against Trichophytosis for 9 consecutive days.

References:

- [1] Lam P L, Wong M M, Hung L K, et al. Miconazole and terbinafine induced reactive oxygen species accumulation and topical toxicity in human keratinocytes[J]. Drug and Chemical Toxicology, 2022, 45(2): 834-838.
- [2] Petranyi G, Meingassner JG, Mieth H. Activity of terbinafine in experimental fungal infections of laboratory animals. Antimicrob Agents Chemother. 1987 Oct;31(10):1558-61.

Background

Terbinafine (TDT 067) is a novel allylamine antifungal agent and a potent noncompetitive squalene cyclooxygenase inhibitor (K_i value is 30 nM) that selectively inhibits squalene cyclooxygenase, leading to a decrease in ergosterol, which interferes with membrane function and cell growth^[1-2].

Terbinafine stimulates ROS production in HaCaT cells and induces a HaCaT Cytotoxic response with IC_{50} values of 12.5-25 μ g/mL, and the Terbinafine group exhibited moderate cell rounding and cell shrinkage compared to untreated control and vector control^[3]. Terbinafine (0, 30, 60 and 120 μ M) concentration-dependently increased the activity of the p21 promoter in HUVEC and induced HUVEC cell cycle arrest by upregulating the p21 protein^[4].

Terbinafine showed good antifungal activity against cutaneous fungal disease in guinea pigs caused by *Trichophyton mentagrophytes* or *Microsporum canis*^[5]. After oral administration of Terbinafine at a dose of 30 mg/kg, the maximum plasma levels in cats, greyhounds and red-tailed eagles were 3.22, 4.01 and 1.2 μ g/ml, respectively. The differences in the half-life of Terbinafine were not significant in cats (8.01 h), greyhounds (8.6 h), and horses (8.1 h), whereas it was significantly prolonged in the red-tailed eagles (17.5 h) and the African penguins (17.0 h) were significantly prolonged^[2].

References:

- [1]. Ryder NS, et al. Terbinafine: mode of action and properties of the squalene epoxidase inhibition.

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Br J Dermatol. 1992 Feb;126 Suppl 39:2-7.

[2]. Wang A, Ding H, Liu Y, et al. Single dose pharmacokinetics of terbinafine in cats[J]. Journal of feline medicine and surgery, 2012, 14(8): 540-544.

[3]. Lam P L, Wong M M, Hung L K, et al. Miconazole and terbinafine induced reactive oxygen species accumulation and topical toxicity in human keratinocytes[J]. Drug and Chemical Toxicology, 2022, 45(2): 834-838.

[4]. Ho PY, Hsu SP, Liang YC, Kuo ML, Ho YS, Lee WS. Inhibition of the ERK phosphorylation plays a role in terbinafine-induced p21 up-regulation and DNA synthesis inhibition in human vascular endothelial cells. Toxicol Appl Pharmacol. 2008 May 15;229(1):86-93.

[5]. Petranyi G, Meingassner JG, Mieth H. Activity of terbinafine in experimental fungal infections of laboratory animals. Antimicrob Agents Chemother. 1987 Oct;31(10):1558-61.

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